

Cross-Connection Control and Backflow Prevention Program

The successful promotion of a cross-connection control and backflow prevention program in a municipality will be dependent upon legal authority to conduct such a program. Where a community has adopted a modern plumbing code, such as the National Plumbing Code, ASA A40.8-1955, or subsequent revisions thereof, provisions of the code will govern backflow and cross-connections. It then remains to provide an ordinance that will establish a program of inspection for an elimination of cross- and backflow connections within the community. Frequently authority for such a program may already be possessed by the water department or water authority. In such cases no further document may be needed. A cross-connection control ordinance should have at least three basic parts.

1. Authority for establishment of a program.
 2. Technical provisions relating to eliminating backflow and cross-connections.
 3. Penalty provisions for violations.
- The following model program is suggested for municipalities who desire to adopt a cross-connection control ordinance. Communities adopting ordinances should check with State health officials to assure conformance with State codes. The form of the ordinance should comply with local legal requirements and receive legal adoption from the community.

CROSS CONNECTION CONTROL
MODEL PROGRAM

WATER DEPARTMENT NAME
ADDRESS

DATE

Approved _____

Date _____

Water Department Name Cross-Connection Control Program

- I. Purpose
- A. To protect the public potable water supply served by the () Water Department from the possibility of contamination or pollution by isolating, within its customers internal distribution system, such contaminants or pollutants which could backflow or back-siphon into the public water system.
- B. To promote the elimination or control of existing cross-connections, actual or potential, between its customers in-plant potable water system, and non-potable systems.
- C. To provide for the maintenance of a continuing program of cross-connection control which will effectively prevent the contamination or pollution of all potable water systems by cross-connection.
- II. Authority
- A. The Federal Safe Drinking Water Act of 1974, and the statutes of the State of () Chapters () the water purveyor has the primary responsibility for preventing water from unapproved sources, or any other substances, from entering the public potable water system.
- B. () Water Department, Rules and Regulations, adopted.

III. Responsibility

The Director of Municipal Services shall be responsible for the protection of the public potable water distribution system from contamination or pollution due to the backflow or backsiphonage of contaminants or pollutants through the water service connection. If, in the judgment of the Director of Municipal Services, an approved backflow device is required at the city's water service connection to any customer's premises, the Director, or his delegated agent, shall give notice in writing to said customer to install an approved backflow prevention device at each service connection to his premises. The customer shall, within 90 days install such approved device, or devices, at his own expense, and failure or refusal, or inability on the part of the customer to install said device or devices within ninety (90) days, shall constitute a ground for discontinuing water service to the premises until such device or devices have been properly installed.

IV. Definitions

A. Approved

Accepted by the Director of Municipal Services as meeting an applicable specification stated or cited in this regulation, or as suitable for the proposed use.

B. Auxiliary Water Supply

Any water supply, on or available, to the premises other than the purveyor's approved public potable water supply.

C. Backflow

The flow of water or other liquids, mixtures or substances, under positive or reduced pressure in the distribution pipes of a potable water supply from any source other than its intended source.

D. Backflow Preventer

A device or means designed to prevent backflow or backsiphonage. Most commonly categorized as air gap, reduced pressure principle device, double check valve assembly, pressure vacuum breaker, atmospheric vacuum breaker, hose bibb vacuum breaker, residential dual check, double check with intermediate atmospheric vent, and barometric loop.

D.1 Air Gap

A physical separation sufficient to prevent backflow between the free-flowing discharge end of the potable water system and any other system. Physically defined as a distance equal to twice the diameter of the supply side pipe diameter but never less than one (1) inch.

D.2 Atmospheric Vacuum Breaker

A device which prevents backsiphonage by creating an atmospheric vent when there is either a negative pressure or subatmospheric pressure in a water system.

D.3 Barometric Loop

A fabricated piping arrangement rising at least thirty five (35) feet at its topmost point above the highest fixture it supplies. It is utilized in water supply systems to protect against backsiphonage.

D.4 Double Check Valve Assembly

An assembly of two (2) independently operating spring loaded check valves with tightly closing shut off valves on each side of the check valves, plus properly located test cocks for the testing of each check valve.

D.5 Double Check Valve with Intermediate Atmospheric Vent

A device having two (2) spring loaded check valves separated by an atmospheric vent chamber.

D.6 Hose Bibb Vacuum Breaker

A device which is permanently attached to a hose bibb and which acts as an atmospheric vacuum breaker.

D.7 Pressure Vacuum Breaker

A device containing one or two independently operated spring loaded check valves and an independently operated spring loaded air inlet valve located on the discharge side of the check or checks. Device includes tightly closing shut-off valves on each side of the check valves and properly located test cocks for the testing of the check valve(s).

D.8 Reduced Pressure Principle Backflow Preventer

An assembly consisting of two (2) independently operating approved check valves with an automatically operating differential relief valve located between the two (2) check valves, tightly closing shut-off valves on each side of the check valves plus properly located test cocks for the testing of the check valves and the relief valve.

D.9 Residential Dual Check

An assembly of two (2) spring loaded, independently operating check valves without tightly closing shut-off valves and test cocks. Generally employed immediately downstream of the water meter to act as a containment device.

E. Backpressure

A condition in which the owners system pressure is greater than the suppliers system pressure.

F. Backsiphonage

The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply system from any source other than its intended source caused by the sudden reduction of pressure in the potable water supply system.

G. Commission

The State of () Control Commission.

H. Containment

A method of backflow prevention which requires a backflow prevention preventer at the water service entrance.

I. Contaminant

A substance that will impair the quality of the water to a degree that it creates a serious health hazard to the public leading to poisoning or the spread of disease.

J. Cross-Connection

Any actual or potential connection between the public water supply and a source of contamination or pollution.

K. Department

City of () Water Department.

L. Fixture Isolation

A method of backflow prevention in which a backflow preventer is located to correct a cross connection at an in-plant location rather than at a water service entrance.

M. Owner

Any person who has legal title to, or license to operate or habitat in, a property upon which a cross-connection inspection is to be made or upon which a cross-connection is present.

N. Person

Any individual, partnership, company, public or private corporation, political subdivision or agency of the State Department, agency or instrumentality or the United States or any other legal entity.

O. Permit

A document issued by the Department which allows the use of a backflow preventer.

P. Pollutant

A foreign substance, that if permitted to get into the public water system, will degrade its quality so as to constitute a moderate hazard, or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably effect such water for domestic use.

Q. Water Service Entrance

That point in the owners water system beyond the sanitary control of the District; generally considered to be the outlet end of the water meter and always before any unprotected branch.

R. Director of Municipal Services

The Director, or his delegated representative in charge of the () Department of Municipal Services, is invested with the authority and responsibility for the implementation of a cross-connection control program and for the enforcement of the provisions of the Ordinance.

V. Administration

A. The Department will operate a cross-connection control program, to include the keeping of necessary records, which fulfills the requirements of the Commission's Cross-Connection Regulations and is approved by the Commission.

B. The Owner shall allow his property to be inspected for possible cross-connections and shall follow the provisions of the Department's program and the Commission's Regulations if a cross-connection is permitted.

C. If the Department requires that the public supply be protected by containment, the Owner shall be responsible for water quality beyond the outlet end of the containment device and should utilize fixture outlet protection for that purpose.

He may utilize public health officials, or personnel from the Department, or their delegated representatives, to assist him in the survey of his facilities and to assist him in the selection of proper fixture outlet devices, and the proper installation of these devices.

VI. Requirements

A. Department

1. On new installations, the Department will provide on-site evaluation and/or inspection of plans in order to determine the type of backflow preventer, if any, that will be required, will issue permit, and perform inspection and testing. In any case, a minimum of a dual check valve will be required in any new construction.

2. For premises existing prior to the start of this program, the Department will perform evaluations and inspections of plans and/or premises and inform the owner by letter of any corrective action deemed necessary, the method of achieving the correction, and the time allowed for the correction to be made. Ordinarily, ninety (90) days will be allowed, however, this time period may be shortened depending upon the degree of hazard involved and the history of the device(s) in question.

3. The Department will not allow any cross-connection to remain unless it is protected by an approved backflow preventer for which a permit has been issued and which will be regularly tested to insure satisfactory operation.

4. The Department shall inform the Owner by letter, of any failure to comply, by the time of the first re-inspection. The Department will allow an additional fifteen (15) days for the correction. In the event the Owner fails to comply with the necessary correction by the time of the second re-inspection, the Department will inform the Owner by letter, that the water service to the Owner's premises will be terminated within a period not to exceed five (5) days. In the event that the Owner informs the Department of extenuating circumstances as to why the correction has not been made, a time extension may be granted by the Department but in no case will exceed an additional thirty (30) days.

5. If the Department determines at any time that a serious threat to the public health exists, the water service will be terminated immediately.

6. The Department shall have on file, a list of Private Contractors who are certified backflow device testers. All charges for these tests will be paid by the Owner of the building or property.

7. The Department will begin initial premise inspections to determine the nature of existing or potential hazards, following the approval of this program by the Commission, during the calendar year (). Initial focus will be on high hazard industries and commercial premises.

B. Owner

1. The Owner shall be responsible for the elimination or protection of all cross-connections on his premises.

2. The Owner, after having been informed by a letter from the Department, shall at his expense, install, maintain, and test, or have tested, any and all backflow preventers on his premises.

3. The Owner shall correct any malfunction of the backflow preventer which is revealed by periodic testing.

4. The Owner shall inform the Department of any proposed or modified cross-connections and also any existing cross-connections of which the Owner is aware but has not been found by the Department.

5. The Owner shall not install a bypass around any backflow preventer unless there is a backflow preventer of the same type on the bypass. Owners who cannot shut down operation for testing of the device(s) must supply additional devices necessary to allow testing to take place. (Ref. Fig. 33 page 23.)

6. The Owner shall install backflow preventers in a manner approved by the Department. (Ref. Figures 3 through 37, pages 23 through 24.)

7. The Owner shall install only backflow preventers approved by the Department or the Commission.

8. Any Owner having a private well or other private water source, must have a permit if the well or source is cross-connected to the Department's system. Permission to cross-connect may be denied by the Department. The Owner may be required to install a backflow preventer at the service entrance if a private water source is maintained, even if it is not cross-connected to the Department's system.

9. In the event the Owner installs plumbing to provide potable water for domestic purposes which is on the Department's side of the backflow preventer, such plumbing must have its own backflow preventer installed.

10. The Owner shall be responsible for the payment of all fees for permits, annual or semi-annual device testing, retesting in the case that the device fails to operate correctly, and second re-inspections for non-compliance with Department or Commission requirements.

VII. Degree of Hazard

The Department recognizes the threat to the public water system arising from cross-connections. All threats will be classified by degree of hazard and will require the installation of approved reduced pressure principle backflow prevention devices or double check valves.

VIII. Permits

The Department shall not permit a cross-connection within the public water supply system unless it is considered necessary and that it cannot be eliminated.

A. Cross-connection permits that are required for each backflow prevention device are obtained from the Department. A fee of () dollars will be charged for the initial permit and () dollars for the renewal of each permit.

B. Permits shall be renewed every () years and are non-transferable. Permits are subject to revocation and become immediately revoked if the Owner should so change the type of cross-connection or degree of hazard associated with the service.

C. A permit is not required when fixture isolation is achieved with the utilization of a non-testable backflow preventer.

IX. Existing in-use backflow prevention devices.

Any existing backflow preventer shall be allowed by the Department to continue in service unless the degree of hazard is such as to supercede the effectiveness of the present backflow preventer, or result in an unreasonable risk to the public health. Where the degree of hazard has increased, as in the case of a residential installation converting to a business establishment, any existing backflow preventer must be upgraded to a reduced pressure principle device, or a reduced pressure principle device must be installed in the event that no backflow device was present.

X. Periodic Testing

A. Reduced pressure principle backflow devices shall be tested and inspected at least semi-annually.

B. Periodic testing shall be performed by the Department's certified tester or his delegated representative. This testing will be done at the owner's expense.

C. The testing shall be conducted during the Department's regular business hours. Exceptions to this, when at the request of the owner, may require additional charges to cover the increased costs to the Department.

D. Any backflow preventer which fails during a periodic test will be repaired or replaced. When repairs are necessary, upon completion of the repair the device will be re-tested at owners expense to insure correct operation. High hazard situations will not be allowed to continue unprotected if the backflow preventer fails the test and cannot be repaired immediately. In other situations, a compliance date of not more than thirty (30) days after the test date will be established. The owner is respon-

sible for spare parts, repair tools, or a replacement device. Parallel installation of two (2) devices is an effective means of the owner insuring that uninterrupted water service during testing or repair of devices and is strongly recommended when the owner desires such continuity. (Ref. Fig. 33 page 23.)

E. Backflow prevention devices will be tested more frequently than specified in A. above, in cases where there is a history of test failures and the Department feels that due to the degree of hazard involved, additional testing is warranted. Cost of the additional tests will be born by the owner.

XI. Records and Reports

A. Records

The Department will initiate and maintain the following:

1. Master files on customer cross-connection tests and/or inspections.
2. Master files on cross-connection permits.
3. Copies of permits and permit applications.
4. Copies of lists and summaries supplied to the Commission.

B. Reports

The Department will submit the following to the Commission.

1. Initial listing of low hazard cross-connections to the State.
2. Initial listing of high hazard cross-connections to the State.
3. Annual update lists of items 1 and 2 above.
4. Annual summary of cross-connection inspections to the State.

XII. Fees and Charges

The Department will publish a list of fees or charges for the following services or permits:

1. Testing fees
2. Re-testing fees
3. Fee for re-inspection
4. Charges for after-hours inspections or tests.

Addendum

1. Residential dual check

Effective the date of the acceptance of this Cross-Connection Control Program for the Town of () all new residential buildings will be required to install a residential dual check device immediately downstream of the water meter. (Ref. Figure 37 page 24.) Installation of this residential dual check device on a retrofit basis on existing service lines will be instituted at a time and at a potential cost to the homeowner as deemed necessary by the Department.

The owner must be aware that installation of a residential dual check valve results in a potential closed plumbing system within his residence. As such, provisions may have to be made by the owner to provide for thermal expansion within his closed loop system, i.e., the installation of thermal expansion devices and/or pressure relief valves.

2. Strainers

The Department strongly recommends that all new retrofit installations of reduced pressure principle devices and double check valve backflow preventers include the installation of strainers located immediately upstream of the backflow device. The installation of strainers will preclude the fouling of backflow devices due to both foreseen and unforeseen circumstances occurring to the water supply system such as water main repairs, water main breaks, fires, periodic cleaning and flushing of mains, etc. These occurrences may “stir up” debris within the water main that will cause fouling of backflow devices installed without the benefit of strainers.